Adventures in Wonderland:
The Measure and Meaning of Landslide Rate

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Landslides are recognized as an intrinsic and important component in the suite of processes driving ecosystem function in landscapes with steep terrain. The consequences of a single landslide are fairly obvious, particularly local to the event in space and time. The deleterious effects of landsliding and the apparent propensity for management activities to trigger landslides have spurred efforts to identify landslide-prone terrain. Regulation of activities in such terrain has also, appropriately, motivated efforts to discern the results of these efforts. Yet, because landslides are naturally distributed unevenly in space and time, it can be difficult to relate variation in landslide rate to changes in management. As yet, such relationships have not been empirically established. I will discuss the challenges faced by such efforts and describe factors important to design of monitoring studies intended to identify differences in landslide rate. I'll report on results from several studies that look at measures of landslide rate in relation to forest type and the presence of forest roads. In particular, I'll look at how measures of landslide rate are affected by the scale over which measurements are made and the manner in which landslides are mapped (on the ground or from aerial photographs). It is important to identify the factors that influence measures of landslide rate, such as spatial variation in topography, temporal variation in landslide-triggering storms, bias in landslide mapping, and the time and area over which mapping is done, because these all affect the replicability of such measures and the confidence to be placed in study results. I'll show how spatial heterogeneity and mapping bias might be quantified and how confidence in measured landslide rates can be estimated as functions of the spatial and temporal extent over which measurements are made.

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